

Overview of Research and Information Needs from the 2012 Agency Adaptation Plans

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<http://globalchange.gov/what-we-do/prepare-the-nation-for-change>

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27 Agency Plans Reviewed



Commodity Futures Trading Commission

Department of Commerce (DOC)

Department of Defense (DoD)

Department of Energy (DOE)

Department of Education (DOEd)

Department of Health and Human Services (HHS)

Department of Homeland Security (DHS)

Department of the Interior (DOI)

Department of Justice (DOJ)

Department of Labor (DOL)

Department of State (DOS)

Department of Transportation (DOT)

Department of Treasury

General Services Administration (GSA)



National Aeronautics and Space Administration (NASA)

National Archives and Records Administration (NARA)

National Capital Planning Commission (NCPC)

Oversees Private Investment Corporation (OPIC)

Department of Health and Human Services (HHS)

Railroad Retirement Board (RRB)

Social Services Administration (SSA)

Tennessee Valley Authority (TVA)

U.S. Army Corps of Engineers (USACE)

U.S. Department of Agriculture (USDA)

U.S. Department of Housing and Urban Development (HUD)

U.S. Environmental Protection Agency (EPA)

U.S. Small Business Administration (SBA)



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Purpose of the Review

- Understand the current most common research and information needs for adaptation as identified by Agencies
- Help make Agencies aware of existing tools and resources that may help meet their needs
- Enhance conversations between existing USGCRP Interagency Working Groups (IWGs) to collaborate on specific points for how best to meet these needs
- Help inform future Federal research agendas related to climate change and adaptation actions



Most Common Research and Information Needs

- Built Infrastructure
- Communication and Training
- Human Health
- Natural Resources
- Disaster Response
- Regional Climate Information and Modeling
- Observations and Monitoring
- Decision Support Tools and Resources



Top 3 Most Frequent Research and Information Needs

- (26/27) Built Infrastructure (*e.g. vulnerability analysis, historic preservation, best practices*)
 - Buildings, dams, roadways, railways
 - Economic markets
 - Energy supply/electrical grid
- (24/27) Communication and Training (*e.g. training, education, and collaboration*)
 - Peer-exchange
 - Region specific
 - Audience specific
- (22/27) Human Health (*vulnerability analysis & risk reduction practices*)
 - Infectious diseases
 - Respiratory health
 - Heat stress
 - Hazards associated with extreme weather events
 - Mental health (after disasters)



Agency-specific Needs

- Natural Infrastructure
 - Coastal and Oceanic (DOC, USACE, DHS)
 - Arctic (DOC, DHS, USPS, DOT, DoD)
 - Agricultural (USDA)
 - General Terrestrial (DOI, USDA, EPA)
 - Species-based (DOI, USDA, EPA)
 - Freshwater Resources (USACE, EPA, HUD, DOI, TVA)
- Disaster Response
 - Modeling of Future Hazards and Natural Disasters
 - Assessment of Specific Actions to Improve Emergency Preparedness

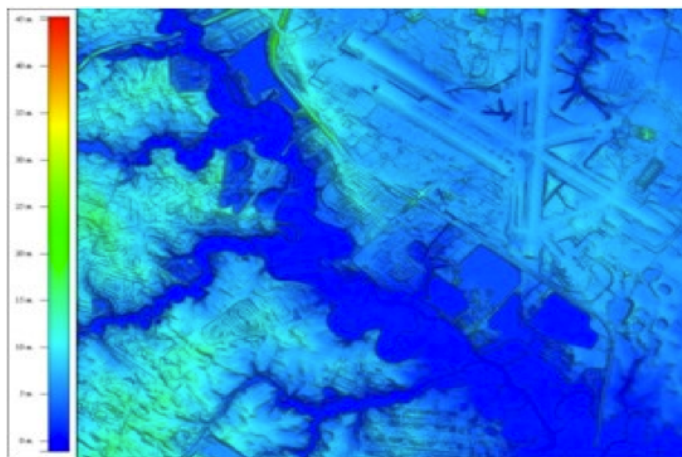


Science Producers

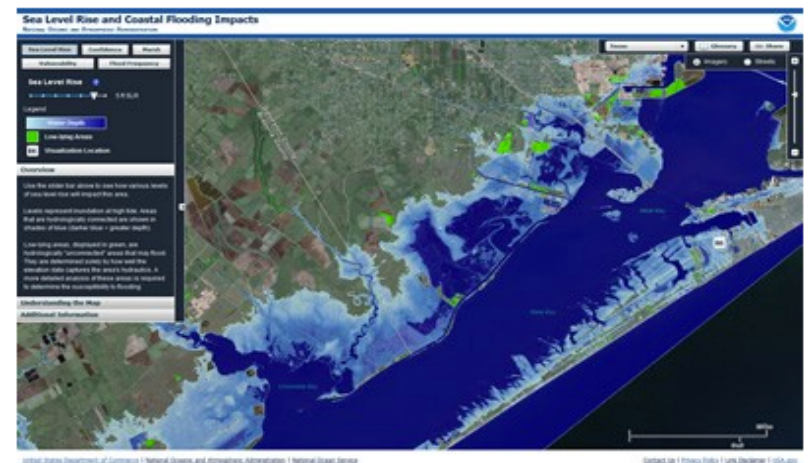


Science Consumers

- Observations and Monitoring
- Regional Climate Information and Modeling
- Decision Support Tools and Resources



Coastal LIDAR Data



Digital Coast- Sea Level Rise Mapper



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Built Infrastructure



Photo courtesy of NOAA



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Overview

- 80% of the U.S. population lives in cities and metropolitan areas that depend heavily on infrastructure
- This need was mentioned most commonly regardless of the agency mission
- Research and information needs include:
 - Improved information on timing, location, and extent of environmental change
 - Assessing vulnerabilities to historic and cultural resources
 - Understanding infrastructure-economic linkages
 - Identifying “mission critical” facilities

Rail Buckling Under Extreme Heat



Photo courtesy of DOT



Useful Resources

- DOT's grant program, "Framework on Conducting Assessments of Transportation Infrastructure Vulnerable to Climate Change Effects"
- USACE "Incorporating Sea Level Change Considerations in Civil Works Programs" produced with NOAA and other partners
- Digital Coast - Sea Level Rise and Coastal Flooding Impacts Viewer
- NRC's Transportation Research Board "Climate Change and Highway Infrastructure: Impacts and Adaptation Approaches"
- HAZUS
- Monumental Core Initiative

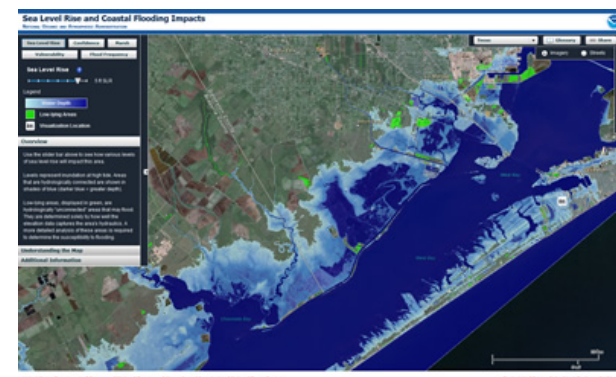


Photo courtesy of NOAA

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Collaboration Opportunities

- Preservation of historic and cultural resources
 - DOI, NARA, ACHP
- Understanding economic vulnerabilities and opportunities associated with climate change
 - OPIC, DOC
- Future climate change planning and data collection
 - USPS, DOT



Communication & Training



Photo courtesy of USGCRP



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Overview

- The term “adaptation” or “resilience” means different things to different decision makers
- The vast majority of plans identified the need to develop, expand, or support communication tools and training
- Research and information needs include:
 - Climate Change Communication and Training
 - Government employee training
 - External partner training
 - Peer exchange programs and workshops on best practices
 - Online curriculum and training



Photo courtesy of FEMA



Useful Resources

- USGCRP's Communication and Education Interagency Working Group (CEIWG)
- DOT's FHWA peer exchange workshops
- USDA's NIFA support to the Extension Disaster Education Network (EDEN)
- USDA's online curriculum, "why do we care about climate change"
- NOAA's climate change adaptation and resilience webinars and training programs for coastal community planners
- GSA's Climate Literacy for Risk Management in Real Property and Supply Chain Training



Photo courtesy of USDA

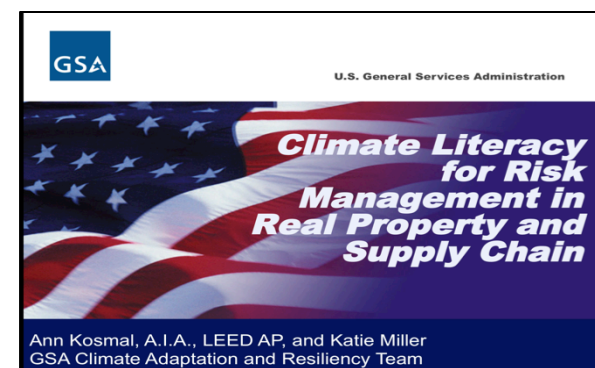


Photo courtesy of GSA



Collaboration Opportunities

- Training materials for professionals faced with climate change and water resources
 - USACE, DOI, UCAR
- Tsunami Awareness and Coastal Community Resilience Training
 - NOAA, FEMA
- Climate change-related K-12 curriculum development
 - DOEd, DOI, NOC



Human Health



Photo courtesy of NASA



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Overview

- Heat is the leading cause of weather-related deaths in the U.S.
- Heat stress was the most frequently cited health concern within the agency adaptation plans
- Research and information needs include:
 - Heat stress
 - Hazard-related Human Health Concerns
 - Role of Human Health in the Context of Multiple Stressors
 - Understanding and responding to climate change-related “bio threats”
 - Climate change and air quality interactions (indoor and outdoor)

Heat Wave Sweeps Across the U.S.
in early July 2013

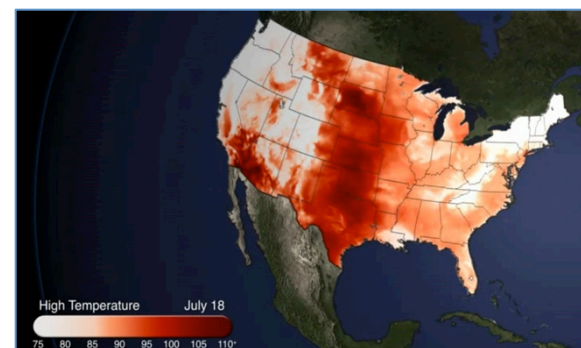


Photo courtesy of NOAA



Useful Resources

- USGCRP's Climate Change and Human Health Group (CCHHG)
- USGCRP's Metadata Access Tool for Climate and Health (MATCH)
- HUD Adaptation Plan Heat Stress Vulnerability Analysis
- CDC's "Climate Change and Extreme Heat Events"
- CDC's Building Resilience Against Climate Effects (BRACE) framework
- CDC's Climate-Ready States and Cities Initiative
- DOEd's Readiness and Emergency Management for Schools



Photos courtesy of USGCRP and CDC



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Collaboration Opportunities

- Integrated climate adaptation strategies
 - HHS, VA, DoD, and FEMA
- Disaster management of human service systems
 - HHS, DOL, DHS, and HUD
- National health security strategies
 - HHS, DHS, and DoD



Key Takeaways & Next Steps

- **Support to the President's Climate Action Plan:** The summaries and next steps from this review will help support the President's Climate Action Plan
- **Provide Translational & Actionable Science:** The USGCRP is working to help shape and moderate the space where the basic science relevant to climate change adaptation is translated to be actionable science to support decisions and actions
- **Establish a Mechanism for Multi-way Dialogue:** It is crucial to establish and nourish a robust and more visible and sustainable multi-way mechanism for peer exchanges on needs and products to meet needs between the science provider and science consumer communities across agencies, and through agencies to their stakeholders
- **Create an Adaptation Resources Library:** Given the increased need for access to relevant resources, USGCRP's Adaptation Science Interagency Workgroup is currently working on gathering resources for an Adaptation Resources Library



Thank You

For more information, please see the USGCRP “Prepare the Nation for Change” website:

<http://globalchange.gov/what-we-do/prepare-the-nation-for-change>



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